ORIGINAL

Mr. John Foreman, Assistant Attorney General
Chairman of the Arizona Power Plant and Transmission Line Siting Committee
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TUCSON AUDUBON SOCIETY

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Dear Mr. Foreman, Assistant Attorney General:

Re: Line Siting Case #144 (Unisource Energy Services Transmission Line Upgrade Project in Rio Rico, Arizona, Palo Parado Crossing to Rio Rico Drive)

The Tucson Audubon Society has reviewed the *Preferred Transmission Line Alignment* of UniSource Energy Services through Rio Rico, Arizona area and has found it is misplaced from an environmental perspective in terms of it significantly degrading, fragmenting, and causing loss of a rare ecological community type, namely old growth mesquite bosque (*Prosopis velutina*). The potentially impacted Rio Rico, Arizona mesquite bosque habitat has exceptional ecological value both inherently for numerous wildlife species, and at a landscape context because so much of the high quality old growth mesquite bosque that can develop to large height status with canopy coverage, has been lost in Arizona and throughout the Southwest due to past wood cutting, groundwater loss from development, or other human induced causes (grazing induced erosion/flood destruction).

Mesquite bosques bordering the Santa Cruz River, in Santa Cruz County, Arizona, are composed of velvet mesquite, net-leaf hackberry, elderberry, blue palo verde, velvet ash, graythorn, acacia, shrubs with berries (e.g., wolfberry, desert hackberry), numerous vines, climbing flowers, herbs (e.g., buffalo gord), and grasses. The mesquite, hackberry, and ash, and some palo verde trees (typically 30+ cm), can grow to very large diameter (100+ cm), and can form a (mostly) closed canopy structure for the forest (16+ feet in height, at 30 cm diameter). This creates a shaded, cooler, moister, and high productive wildlife habitat, with increased food resources from flowering plants and highly productive insect populations. Mesquite bosques are extremely efficient in nitrogen fixation (from mesquite "nitrogen fixing" root symbiotic bacteria); they enrich the soil and ecosystem components (plant and animal), and provide for greater nitrogen transfer within the ecosystem food web, leading to overall greater productivity within this ecosystem (Stromberg 1993). The wildlife that benefits within these tall, old growth mesquite bosque forests (and those becoming older forests), are **Gray Hawk, an Arizona Game and Fish Department listed Species of Greatest Conservation Need, SGCN, Tier 1b species** –second highest ranking (a mostly tropical raptor species that has a regular established population in Arizona, found in southern Arizona riparian areas, nesting in cottonwood trees and dependent on mesquite bosques for foraging habitat). Other mesquite bosque associated animals, that thrive within this productive habitat, include; birds: **Bell's Vireo (Audubon WatchList-Red), Lucy's Warbler (Audubon WatchList-Yellow), Ladder-back Woodpecker, Yellow-billed Cuckoo (SGCN Tier 1a), Ash-throated Flycatcher, Bewick's Wren, Elf Owl (Audubon WatchList-**

**Yellow), and *formerly* Cactus Ferruginous Pygmy-Owl**; mammals: **Merriam's Pocket Mouse (SGCN Tier 1b), Mexican Opossum (SGCN Tier 1c), Raccoon, Javelina, White-tailed Deer, Coyote, and *formerly* Jaguar**; amphibians: **Woodhouse's Toad**; lizards: **Sonoran Spotted Whiptail and Ornate Tree Lizard**; turtles: **Ornate Box Turtle**; and snakes: **Lined Coachwhip (SGCN Tier 1c) and Common Kingsnake**. (These species notably abundant and mesquite bosque associated, but this is a non-comprehensive list).

Gray Hawk have been studied in Arizona along the San Pedro River, and their productivity was found to increase with increasing area of mesquite within their foraging home range (Bibles 1999). The majority of the nests studied on the San Pedro (n=23 of 27) had 20-80 hectares of mesquite bosque within them, and ranged in size from 21-91 hectares, mean 59 hectares, with outward hawk forage zones from nests extending 600-800 meters (some further) in distance, depending on the distance of nearby mesquite bosques.

Audubon (the Arizona Important Bird Areas Program) studied Gray Hawk along the Upper Santa Cruz River in Santa Cruz County in 2005 (TAS, AZ IBA Program 2005). We found three active Gray Hawk nests and one active Swainson's Hawk (*Buteo swainsoni*) nest, along the reach from Palo Parado Crossing south to Rio Rico Drive. Gray Hawk have a 78% re-occupancy rate (Bibles 1999), therefore are likely still using the same areas. We view all three of these nest threatened with loss of habitat quality with the proposed transmission line placement. One nest (the northern most) would be directly threatened by the transmission line virtually on top of the nest tree (a cottonwood), endangering the nesting birds by electrocution by their coming and going to the nest site. Two nests, the northern and middle, we believe would lose significant quantities of mesquite bosque (cleared within the transmission line right-of-way) within their likely foraging home range, resulting in reduced productivity, and/or site non-occupancy. The southern nest site may also be threatened with habitat loss/degradation if the preferred transmission line placement impacts the mesquite bosque directly north of Rio Rico Drive, and east of the railroad tracks. The Swainson's Hawk nest (in a cottonwood) appears to be directly threatened if the preferred transmission line placement continues directly south along the railroad tracks. The transmission line placement would be virtually on top of the nest, and there would be significant potential for electrocution of nesting hawks, due to hawks coming and going to the nest site. See attached maps with Gray Hawk nests located in North, Middle, and South sections. The "deep dark green" color mesquite bosques on the aerial images, both east and immediately west of the north-south railroad tracks should be avoided in transmission line placement through this river reach. Brown color scrub habitat or light green agricultural fields on the images, would both be areas of acceptable alternative transmission line placement, in an alignment significantly west of the proposed transmission line route (which appears along the eastern side of the railroad tracks in the UniSource map).

We therefore recommend two alternatives: 1) a line placement to the west (significantly west, not adjacent) of the railroad tracks placed in lower quality agricultural fields or scrub mesquite habitat (avoiding tall, old growth mesquite bosque habitat) for the length of passage along the "Rio Rico mesquite bosque" from Palo Parado Crossing to Rio Rico Drive (essentially an

alignment adjacent to I-19, immediately on the east side of the interstate), or 2) a line placement exactly along the existing Transmission Line Alignment, where clearing has already occurred (but do not widen corridor through additional vegetation clearing). If you have further questions please feel free to contact the Tucson Audubon Society.

Sincerely,

Scott L. Wilbor 9/10/2009

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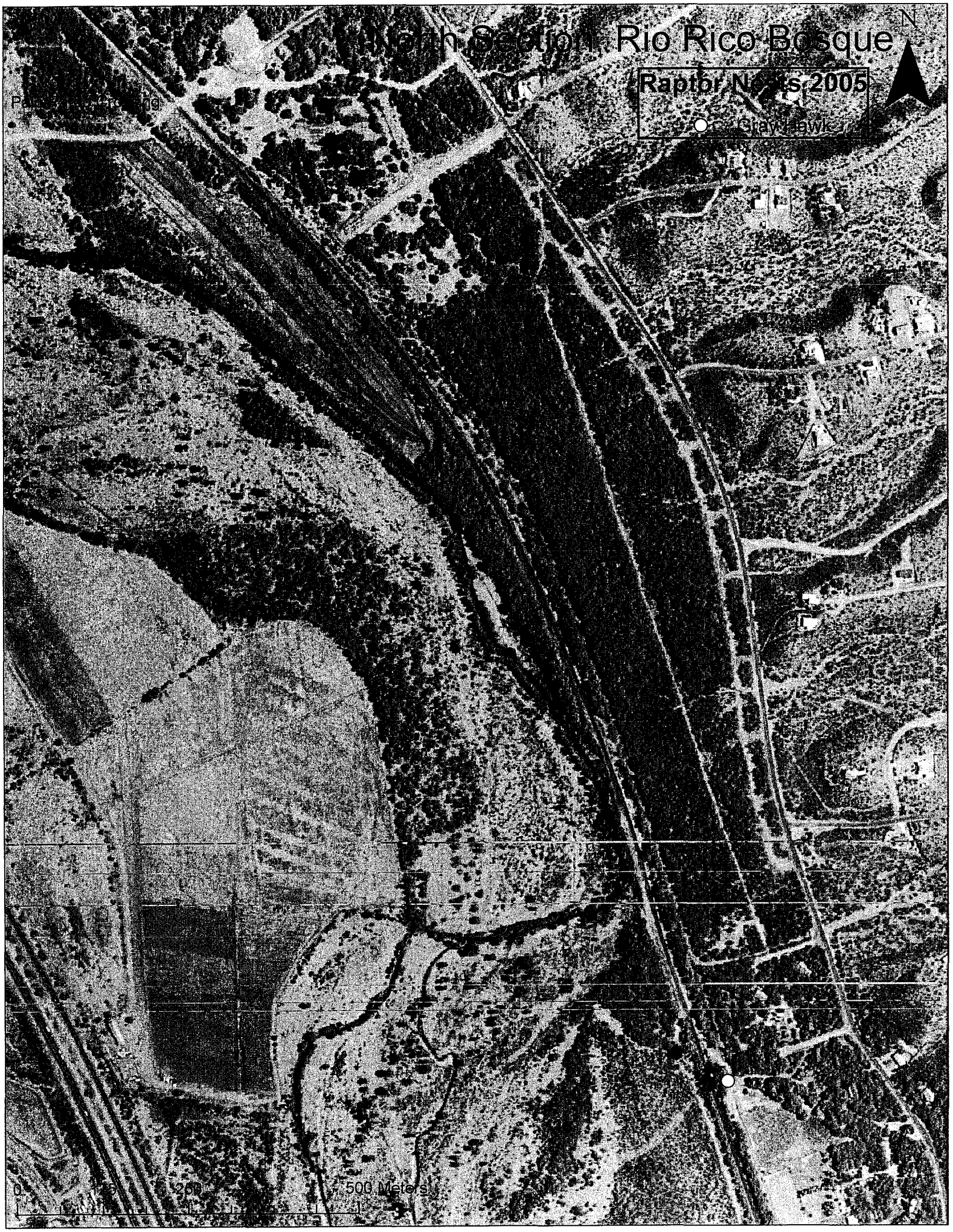
REFERENCES

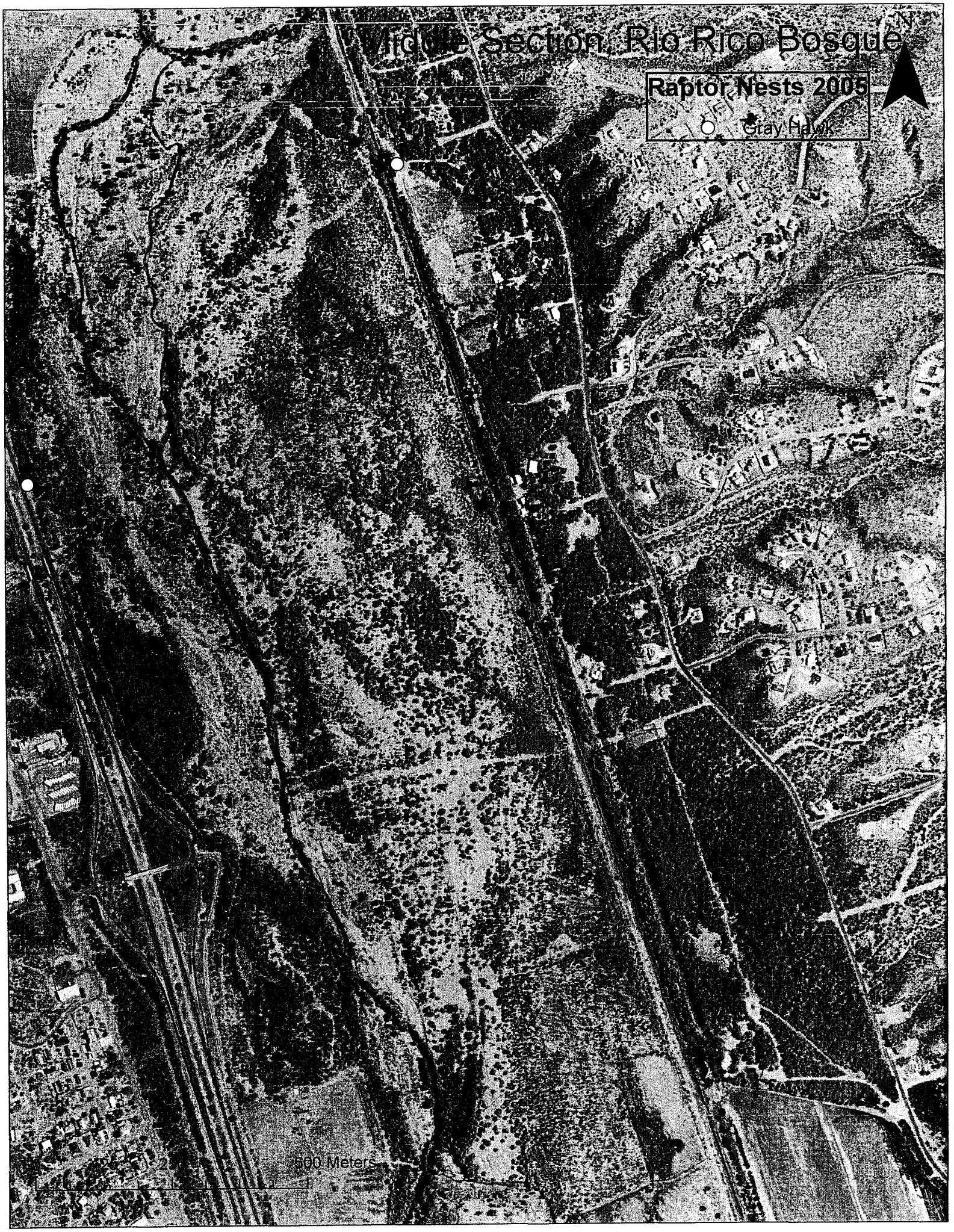
Bibles, B.D. 1999. The relationship between productivity and habitat quality in Gray Hawks. PhD dissertation. University of Arizona. 95 p.

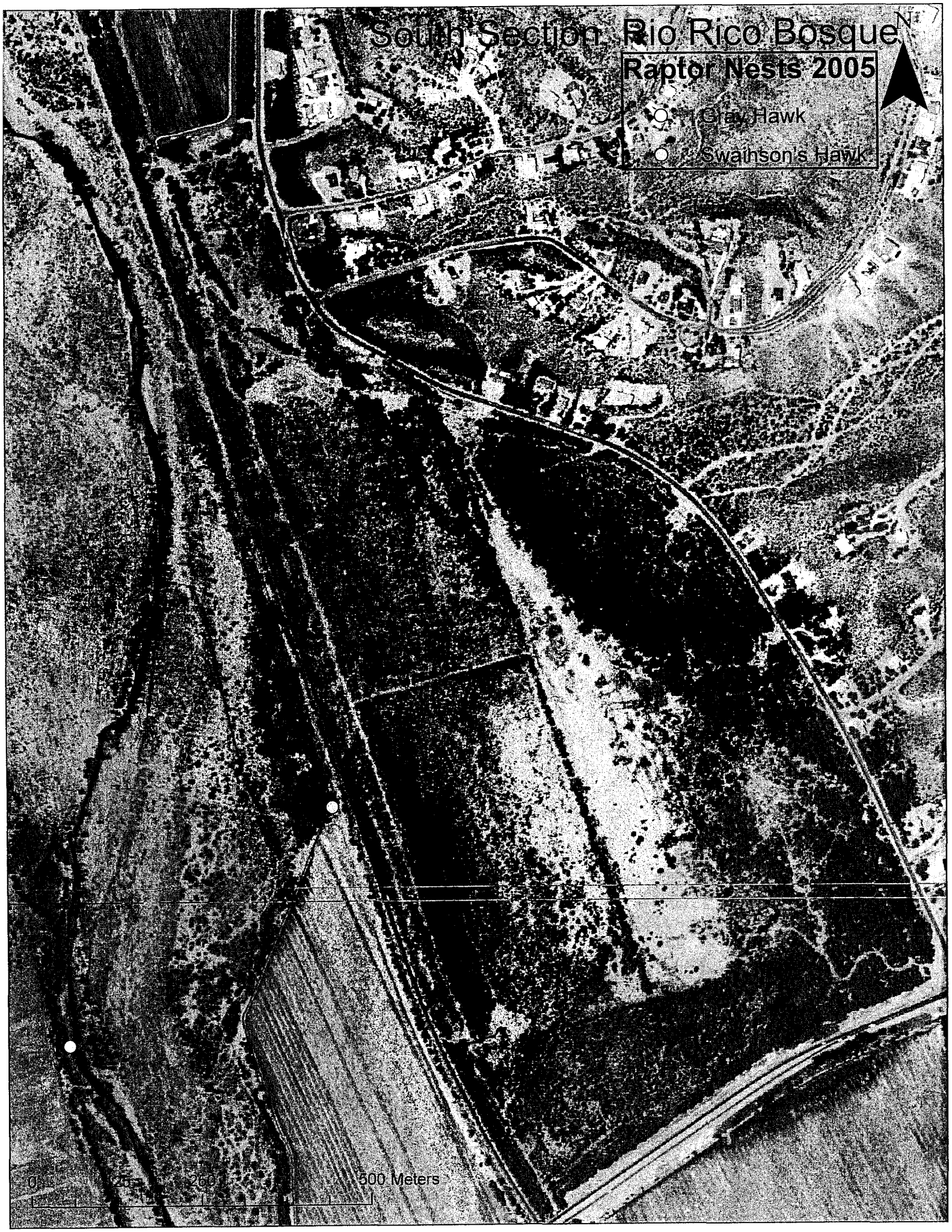
Stromberg, J.C. 1993. Riparian mesquite forests: a review of their ecology, threats, and recovery potential. J. of the Arizona-Nevada Academy of Science 27 (No. 1) 111–124.

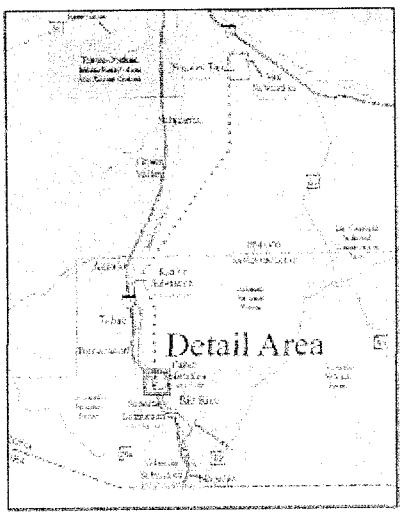
Tucson Audubon Society, Arizona Important Bird Areas Program. 2005. Inventory and monitoring of avian populations in the U.S./Mexico Border Region, the Upper Santa Cruz River Watershed, report for the U.S. Forest Service International Program. 61 p.


Overview, Rio Rico Bosque
Raptor Nests 2005
Gray Hawk
Swainson's Hawk
N
Meters


North Section, Rio Rico Bosque
Raptor Nests 2005
Gray Hawk
N
0
125
250
500 Meters


Middle Section, Rio Rico Bosque
N
Raptor Nests 2005
Gray Hawk
500 Meters


South Section, Rio Rico Bosque
N
Raptor Nests 2005
Gray Hawk
Swainson's Hawk
N
0
250
500 Meters


Land Owner Marty Jakle

Legend

Parcel Boundary

Existing Transmission Line Alignment

Preferred Transmission Line Alignment

Alternative Transmission Line Alignment

0 0.5 Miles

Vail to Valencia
115kV to 138 kV
Transmission Line
Upgrade Project

UniSource Energy Services
TRANSCON

Land Owners Marty Jakle.mxd